

WHAT IS CLAIMED IS:

1. A vehicle door attached to the getting in/out section of a vehicle in a manner enabling it to open and close, comprising:

a window at an upper side and a panel at a lower side, further comprising:

a glass plate which is movable upward and downward, and closes said door window when the glass plate rises, and is housed inside said vehicle panel when the glass plate falls, guide rails which are arranged at front and rear sides of an upward and downward movement locus of the glass plate and guide the glass plate, and a drive unit which is provided inside the panel of the door and drives said glass plate up and down, wherein

at least one supporting rod is provided vertically inside said panel along the upward and downward movement locus of the glass plate at a vehicle inner side of the upward and downward movement locus of the glass plate;

a contact member is provided at a lower portion of the glass plate so as to move up and down together with the glass plate while maintaining a gap for preventing contact with the supporting rod; and

a size of said gap is determined so that the lower portion of the glass plate is prevented from excessively deflecting by contact between said contact member and said supporting rod when the lower portion of the glass plate is about to move excessively in a vehicle inward direction due to inertia at the moment of closing the door.

2. A vehicle door attached to the getting in/out section of a

vehicle in a manner enabling it to open and close, comprising:

a window at an upper side and a panel at a lower side, further comprising:

a glass plate which is movable upward and downward, and closes said door window when the glass plate rises, and is housed inside said vehicle panel when the glass plate falls, guide rails which are arranged at the front and rear sides of the upward and downward movement locus of the glass plate and guide the glass plate, and a drive unit which is provided inside the panel of the door and drives said glass plate up and down, where said drive unit for driving the glass plate up and down is provided with

a base panel having a plurality of pulleys for guiding wires for driving the glass plate up and down,

a drum for driving the wires, provided on the base panel,

a carrier plate constructed so as to move up and down between upper and lower pulleys while supporting a lower side of said glass plate, and

wires which are laid across the plurality of pulleys provided at upper and lower positions of said base panel, partially wound around the drum for driving said wires, and fixed to said carrier plate at ends, and

constructed so that the wires laid across the pulleys are moved by rotating said wire driving drum to drive the carrier plate up and down, wherein

at wire fixing portions on said carrier plate, vertical through

holes are formed in a part of the carrier plate, free ends of said wires laid across the pulleys are inserted through the through holes, stopper members having a larger diameter than that of said wires are fixed to sides of the wire free ends inserted through the through holes, and trumpet-shaped guide portions the pulley sides of which are made larger in diameter are formed at hole edges at the pulley sides of the through holes in a condition where the penetrating wires are positioned at a center.

3. The vehicle door according to Claim 2, wherein the wire fixing portion on the carrier plate closer to the upper pulley side is provided on a projecting member that faces sideward and is positioned at a lower position of the carrier plate so that the fixing portion on the carrier plate becomes distant from the upper pulley.

4. A vehicle door attached to the getting in/out section of a vehicle in a manner enabling it to open and close, comprising:

a window at an upper side and a panel at a lower side, further comprising:

a glass plate which is movable upward and downward, and closes said door window when the glass plate rises, and is housed inside said vehicle panel when the glass plate falls, guide rails which are arranged at the front and rear sides of the upward and downward movement locus of the glass plate and guide the glass plate, and a drive unit which is provided inside the panel of the door and drives said glass plate up and down, where said drive unit for driving the glass plate up and down is provided with

a base panel having a plurality of pulleys for guiding a wire for driving the glass plate up and down,

a drum for driving the wire, provided on the base panel,

a carrier plate constructed so as to move up and down between the upper and lower pulleys while supporting a lower side of said glass plate, and

wires which are laid across the plurality of pulleys provided at upper and lower positions of said base panel, partially wound around the drum for driving said wires, and fixed to said carrier plate at ends, and furthermore,

a tensioner which is provided between the pulleys and the drum, and tensions the wires to prevent the wires from slackening when the wires are about to slacken, and

constructed so that the wires laid across the pulleys are moved by rotating said wire driving drum to drive the carrier plate up and down, wherein

a main body of said tensioner is provided with a first slide member and a second slide member that are provided in parallel and connected to each other;

a gap for forming a passage for said wire is provided between the first slide member and second slide member;

the first slide member is pivotally attached to the base panel so that the second slide member can reciprocate like a pendulum,

the circumferential surfaces of the first slide member and second slide member, which are opposed to the wire passing through

the wire passage between said first slide member and second slide member, are almost V-shaped and provided with groove bottoms at which the wire passes through at centers, and

in response to rotation of the drum having said spiral groove, even when a movement locus of the wire advancing and retreating between the drum and pulley deflects in a drum axial direction, the wire passing through said wire passage between the first slide member and second slide member always passes along the groove bottoms of the first slide member and second slide member.

5. The vehicle door according to Claim 4, wherein a separating condition between the base panel and the grooves formed into almost a V shape in the tensioner is set so that, in a condition where the movement locus of the wire laid across the drum and pulley deflects in the drum axial direction due to the rotation of the drum that has said spiral groove, the V-shaped grooves of the tensioner are at positions slightly deviating toward sides to which the greatest tension is applied from a center of the deflection width.